

REMARKS

Claims 3, 4, 11-14 and 17 are amended herein. Support for the amendments to Claims 3, 11 and 17 is found in the specification, for example, at page 12, line 22, through page 13, line 4. Support for the amendments to Claims 4 and 12-14 is found in the specification, for example, at page 12, lines 11-17. Accordingly, no new matter is added to the claims.

Upon entry of the amendment, Claims 1-19 are pending herein.

Rejection of Claims 1-19 under 35 U.S.C. §103(a) over Miyatake

Claims 1-19 are rejected under 35 U.S.C. §103(a), as being obvious over Miyatake (US Pat. No. 6,773,121).

Applicants submit that the claims are non-obvious over Miyatake because Miyatake is not available as prior art to reject the claims of the present application as being obvious. In accordance with 35 U.S.C. §103(c), Applicants submit herewith a Declaration under 37 C.F.R. §1.132 stating that the subject matter of the Miyatake reference and the claimed invention were, at the time the claimed invention was made, owned by the same entity, or subject to an obligation of assignment to the same entity, NITTO DENKO CORPORATION. As established under 35 U.S.C. §103(c), a reference that was, at the time the claimed invention was made, owned by the same entity, or subject to an obligation of assignment to the same entity as that of the claims under examination, cannot be prior art against those claims in a rejection under 35 U.S.C. §103(a). Thus, Miyatake cannot be prior art against the pending claims in a rejection under 35 U.S.C. §103(a). In view of the Declaration under 37 C.F.R. §1.132 and the requirements of 35 U.S.C. §103(c), Applicants respectfully request reconsideration and withdrawal of this obviousness rejection of the claims.

Rejection of Claims 1-6 and 11-19 under 35 U.S.C. §103(a) over Nakada, Nishida and Miyatake

Claims 1-6 and 11-19 are rejected under 35 U.S.C. §103(a), as being obvious over Nakada (US Pat. No. 6,472,012) in view of Nishida (US Pub. No. 2002/0127408) and Miyatake. The Office Action states that Nakada teaches a fluorine compound (B), and that it would have been obvious for this compound to have the molecular weights recited in the claims based on

Nakada's teachings of the stoichiometric amounts of compounds in the antireflection film. The Office Action further states that Nishida teaches a siloxane oligomer (A), and Miyatake teaches the molecular weight of the siloxane oligomer (A).

Applicants submit that the claims are not *prima facie* obvious over the cited references because Miyatake is not available as prior art, and because Nakada and Nishida, alone or combined, do not teach all elements of the claims.

As stated above, Miyatake is not available as prior art to reject the claims of the present application as being obvious. Absent the teachings of Miyatake, the claims are not *prima facie* obvious because Nakada and Nishida, alone or combined, do not teach all elements of the claims. In particular, no combination of the cited references teaches a siloxane oligomer having an average molecular weight of 500 to 10000 in terms of ethylene glycol. Accordingly, Claims 1-6 and 11-19 are non-obvious over the cited references.

Further to the above, Claims 1-6 and 11-19 are non-obvious over Nakada and Nishida because the cited references do not teach siloxane oligomer having an average molecular weight of 500 to 10000 in terms of ethylene glycol. Nakada does not teach a siloxane oligomer. The Office Action confirms that this element is not present in Nakada by stating, "Nakada does not teach that the composition contains siloxane oligomer with a molecular weight of 500-10000 in terms of ethylene glycol." *Office Action* at page 5.

The Office Action points to Nishida at paragraph [0024] as teaching a siloxane oligomer. Nishida at paragraph [0024] states:

The low refractive index layer 4 may be made of fluorine-based acrylic resin or silicone resin, which will provide a minimum surface reflectance as exceedingly low as 0.5% or less for the antireflection film.

The above teachings of Nishida are directed to a silicone resin layer, not a siloxane oligomer. Nishida's only other mention regarding the use of a silicon-containing composition is Nishida's characterization of the shortcomings of silicone resins due to poor alkali resistance. *See Nishida* at paragraph [0006]. Nishida is silent regarding siloxane oligomers. Nishida is silent regarding any details of the precursor silicon-containing compounds used to form the silicone resin layer. Nishida is silent regarding a silicon-containing compound being used as one of a plurality of components for forming a low refractive index layer. While Applicants do not argue that Nishida fails to teach silicone resins in low refractive index layers, such teaching is not related to

the use of a siloxane oligomer in combination with additional components in forming a resin. Nothing in Nishida's teachings would lead one of ordinary skill to select a siloxane oligomer in forming a resin used in antireflection films. Further, nothing in Nishida's teachings would lead one of ordinary skill to use a siloxane oligomer having an average molecular weight of 500 to 10000 in terms of ethylene glycol. There is no teaching whatsoever in Nishida for selecting the molecular weight range recited in Applicants' claims. As such, this element of the claims is not provided by Nishida.

The Office Action appears to point to Nakada for teaching the desired molecular weight of the siloxane oligomer component of the resin. However, as discussed above, it is undisputed that Nakada does not teach a siloxane oligomer. Applicants submit that Nakada cannot teach the desired molecular weight of the siloxane oligomer because Nakada is completely silent regarding a siloxane oligomer. The teachings to which the Office Action points as the basis for Nakada's desired molecular weight of the siloxane oligomer are unrelated to siloxane oligomer. Even if Nakada taught the desirability of a different component having a molecular weight of 500 to 10000, such teaching is not relevant to the use of siloxane oligomer, much less the molecular weight thereof. Therefore, such teachings cannot serve as a basis for selecting the desired molecular weight of the siloxane oligomer. Accordingly, Nakada's teachings are not relevant to the siloxane oligomer of the claims, or the molecular weight thereof. Thus, this element of the claims is not provided by Nakada.

The Office Action further points to Miyatake as teaching a siloxane oligomer with a molecular weight within the claimed range. However, as discussed above, Miyatake is not available as prior art to the instant claims. Accordingly, Miyatake's teachings are not relevant to the present rejection.

No combination of Nishida or Nakada can provide that which is lacking in both references. Neither reference mentions siloxane oligomers. Neither reference mentions the molecular weight of siloxane oligomers. As such, no combination of these references would lead to use of any siloxane oligomer, much less a siloxane oligomer having the molecular weight recited in Applicants' claims. Accordingly, no combination of the cited references teaches all elements of the claims. As such, the claims are non-obvious over the cited references.

In contrast to the teachings of Nishida and Nakada, Applicants have shown that the combination of components as recited in the claims demonstrates both excellent antireflection characteristics as well as good antiscratchability properties. See *Specification* at Table 1 (page 51). These properties are not apparent from the teachings of Nishida and Nakada, alone or combined. Thus, these properties are both superior to, and unexpected over, the teachings of the references. For example, Applicants have shown that when a fluorine compound having a fluoroalkyl structure and a polysiloxane structure were used without a siloxane oligomer as the resin for forming the antireflection layer, the resultant layer showed high susceptibility to scratching (see, e.g., Comparative Example 1 and Table 1). Furthermore, Applicants have also shown the importance of the molecular weight of the siloxane oligomer to be used. When a siloxane polymer of lower molecular weight was combined with a fluorine compound having a fluoroalkyl structure and a polysiloxane structure, the resultant resin became gelled, and, thus, was not able to be used in forming an antireflection layer (see, e.g., Comparative Example 2). In contrast, the antireflection layers formed using a resin in accordance with the claims resulted in antireflection layers excellent antireflection characteristics and possessing good antiscratchability properties (see, e.g., Examples 1-5). These properties are not present in the resins of Nishida and Nakada, and the cited references provide no guidance for how to modify a resin in order to achieve such properties. Accordingly, the claimed resins possess properties that are both superior to, and unexpected over, the resins of Nishida and Nakada. Therefore, the claims are further non-obvious over these references.

Claims 3, 4, 11-14 and 17

Claims 3, 4, 11-14 and 17, as amended, further are non-obvious over the cited references. Claims 3, 11 and 17 are amended to recite that the claimed composition further comprises at least one crosslinking compound selected from the group consisting of melamine resin, acrylic resin, azide and isocyanate. Neither Nishida nor Nakada provide melamine resin, acrylic resin, azide or isocyanate as crosslinking compounds. Accordingly, neither Nishida nor Nakada, nor a combination thereof, teaches all elements of Claims 3, 11 and 17. Therefore Claims 3, 11 and 17 are further non-obvious over Nishida and Nakada.

Claims 12-14 are amended to recite that the claimed composition further comprises at least one acid generating agent selected from the group consisting of p-toluenesulfonic acid, benzoic acid and a triazine-based compound. Neither Nishida nor Nakada provide p-toluenesulfonic acid, benzoic acid or a triazine-based compound as acid generating agents. Accordingly, neither Nishida nor Nakada, nor a combination thereof, teaches all elements of Claims 12-14. Therefore Claims 12-14 are further non-obvious over Nishida and Nakada.

Claims 16 and 19

Claims 16 and 19 further are non-obvious over the cited references. Claims 16 and 19 recite that the fluorine compound contains a hydroxyl group and/or an epoxy group which are reactive with the siloxane oligomer or the polysiloxane structure in the fluorine compound. Neither Nishida nor Nakada provide a fluorine compound in accordance with the claims that contains a hydroxyl group and/or an epoxy group.

The Office Action points to column 4, lines 4-14 of Nakada as teaching the possibility of, for example, a hydroxymethyl moiety being present in Nakada's formula (4): $\text{CF}_3(\text{CF}_2)_n\text{CH}_2\text{CH}_2\text{Si}(\text{OR}^4)_3$, which would result in a hydroxyl group being present. Applicants submit that Nakada's formula (4) does not permit the presence of a hydroxyl group (-OH) being present. Nakada teaches that R^4 is C_{1-5} alkyl. Thus, all oxygen atoms in Nakada's formula (4) must be bonded to a silicon atom and a carbon atom (-Si-O-C-), and no oxygen atoms in Nakada's formula (4) can be bonded to a hydrogen atom as occurs in a hydroxyl group (-OH). The -O-CH₃ group asserted in the Office Action's example is a methoxy group, not a hydroxyl methyl group (-CH₂OH). Accordingly, Nakada's formula (4) does not permit the presence of -OH groups. As such, Nakada's formula (4) does not permit the presence of hydroxyl groups. Therefore, Nakada does not teach this element of Claims 16 and 19.

Rejection of Claims 7-10 under 35 U.S.C. §103(a) over Nakada, Nishida and Miyatake

Claims 7-10 are rejected under 35 U.S.C. §103(a), as being obvious over Nakada in view of Nishida, Miyatake and Taruishi (US Pat. No. 6,572,973). The Office Action states that Taruishi teaches an anti-glare layer made of a hard-coat material.

Claims 7-10 are non-obvious because no combination of the cited references teaches all elements of the claims. Claims 7-10 ultimately depend from Claim 1. As discussed above, Miyatake is not prior art to the present claims, and no combination of Nakada and Nishida teaches all elements of the claims because no combination of the references teaches a siloxane oligomer having an average molecular weight of 500 to 10000 in terms of ethylene glycol. Taruishi does not provide that which is lacking in Nakada and Nishida. Taruishi teaches a low reflection member for use in an image display device. However, Taruishi does not teach a siloxane oligomer, much less a siloxane oligomer having an average molecular weight of 500 to 10000 in terms of ethylene glycol. As such, Taruishi does not provide that which is lacking in the cited references. Accordingly, no combination of the cited references teaches all elements of Claim 1, from which Claims 7-10 ultimately depend. Therefore, no combination of the cited references renders Claims 7-10 obvious.

No Disclaimers or Disavowals

Although the present communication may include alterations to the application or claims, or characterizations of claim scope or referenced art, Applicant is not conceding in this application that previously pending claims are not patentable over the cited references. Rather, any alterations or characterizations are being made to facilitate expeditious prosecution of this application. Applicant reserves the right to pursue at a later date any previously pending or other broader or narrower claims that capture any subject matter supported by the present disclosure, including subject matter found to be specifically disclaimed herein or by any prior prosecution. Accordingly, reviewers of this or any parent, child or related prosecution history shall not reasonably infer that Applicant has made any disclaimers or disavowals of any subject matter supported by the present application.

CONCLUSION

In view of the above, Applicants respectfully maintain that claims are patentable and request that they be passed to issue. Applicants invite the Examiner to call the undersigned if any remaining issues might be resolved by telephone.

Application No.: 10/535,681
371(c) Date: May 19, 2005


Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

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Dated: November 10, 2008

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